



04CO

~~GAU 3743~~

03-22-01

PATENT

Attorney Docket No. 12991US01

4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION OF:

RICHARD SEDERQUIST and
ALAKH PRASAD

SERIAL NO. 09/727,224

FILED: November 30, 2000

FOR: COMPACT MULTIPLE TUBE
STEAM REFORMER

GROUP ART UNIT: 1764
3743

EXAMINER: _____

CERTIFICATE OF MAILING

I hereby certify that this
correspondence is being
deposited with the United
States Postal Service as
first class mail, postage
prepaid, in an envelope
addressed to: Assistant
Commissioner for Patents,
Washington, D.C. 20231, on
this date:

March 14, 2001

Robert W. Fieseler
Robert W. Fieseler
Registration No. 31,826
Attorney for Applicants

INFORMATION DISCLOSURE STATEMENT

RECEIVED

MAR 21 2001

Assistant Commissioner for Patents
Washington, D.C. 20231

TECHNOLOGY CENTER R3700

Sir:

Applicants submit herewith a copy of each of the
following references for consideration in connection with
the above application.



<u>U.S. Patent No.</u>	<u>Inventor(s)</u>	<u>Issue Date</u>
4,203,950	Sederquist	05/80
4,861,347	Szydlowski et al.	08/89
4,935,037	Koyama et al.	06/90
5,484,577	Buswell et al.	01/96
5,516,344	Corrigan	05/96
5,718,881	Sederquist et al.	02/98
5,931,658	Sederquist et al.	08/99

The above references are listed on the enclosed Form PTO-1449 entitled "Information Disclosure Citation."

Concise Explanation of the
Relevance of the Cited Reference(s)

Sederquist U.S. Patent No. 4,203,950 discloses a steam reforming reactor designed to reduce catalyst crushing. During operation of the reactor, the volume within the annular chamber increases and decreases due to the differing coefficients of expansion of the inner and outer walls of the catalyst particles, resulting in some particle crushing. The design of the inner and outer walls of the steam reformer are in conformance with a specific constraint equation, thereby reducing some of the particle crushing during the operation of the reactor.

Szydlowski et al. U.S. Patent No. 4,861,347 discloses a compact chemical reaction vessel for catalytically reforming

raw hydrocarbon fuels. An annular chamber is surrounded by a heating zone that extends through the interior the catalyst bed, thereby heating the catalyst from inside and outside the bed.

Koyama et al. U.S. Patent No. 4,935,037 discloses a compact fuel reforming apparatus for use in a fuel cell power apparatus. The apparatus includes a reaction tube for the endothermic reaction, a combustor for generating gas to heat the tube, a heat insulating layer for preventing the radiation of the gas, and a combustion gas passage. The gas passage is disposed around the reaction tube and allows the combustion gas to pass through. A second passage, with a heat-insulating layer on the peripheral surface, is disposed around the fuel gas passage to allow for the flow of air or fuel.

Buswell et al. U.S. Patent No. 5,484,577 discloses a catalytic hydrocarbon reformer with an enhanced internal heat transfer mechanism. The reformer promotes convective heat transfer between the hot combustion gas stream and the reactor by employing a narrow gap heat transfer area, thereby inducing a turbulent flow of the combustion gas across the reactor tube.

Corrigan U.S. Patent No. 5,516,344 discloses a fuel cell power plant fuel processing apparatus. The apparatus includes a plurality of components integrated into a single containment vessel. The gas reformer, in the upper portion of the vessel, has an air pre-heater for the burner and a plenum for supplying the shift converter portion. The shift converter, and the shift converter heat exchanger, are located with the steam and fuel heat exchangers in the lower section of the containment vessel.

Sederquist et al. U.S. Patent No. 5,718,881 discloses a catalytic reactor designed to reduce catalytic slumping and crushing. The steam reformer has side walls that have a higher thermal coefficient of expansion than the coefficient of expansion of the catalyst. The catalyst bed is divided into segments having volumes that are inversely proportional to the temperatures of the reformer, so that low volume catalyst segments are found in the hotter portions of the vessel to reduce slumping and crushing. To form the different sections, the segments have support members resting on support assembly legs of varying lengths.

Sederquist et al. U.S. Patent No. 5,931,658 discloses a fuel cell power plant furnace. The fuel cell system has a fuel processing apparatus to make the product gas and a fuel cell stack for converting the gas into electricity. The fuel processing apparatus is made up of a furnace and a catalytic reactor. The furnace has a fuel and air pre-heat chamber to increase the flame temperatures within the furnace during the steam reforming process.

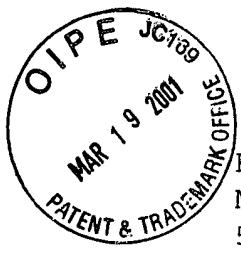
This Information Disclosure Statement is being submitted before receipt of a first action on the merits of the present application.

Please charge any fees incurred in connection with this submission to Deposit Account No. 13-0017 in the name of McAndrews, Held & Malloy, Ltd.

Respectfully submitted,



Robert W. Fieseler
Registration No. 31,826
Attorney for Applicants



Russell A. Garrison
MCANDREWS, HELD & MALLOY, LTD.
500 West Madison Street, 34th Floor
Chicago, Illinois 60661

Telephone (312) 775-8000
Facsimile (312) 775-8100

Dated: March 14, 2001

PTO-1449 (Rev. 8-83) (modified)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 12991US01	SERIAL NO. 09/727,224
INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)		APPLICANT(s): Sederquist et al.	
		FILING DATE Nov. 30, 2000	GROUP ART UNIT:

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		4,203,950	05/80	Sederquist	422	197	
		4,861,347	08/89	Szydłowski et al.	48	61	
		4,935,037	06/90	Koyama et al.	48	94	
		5,484,577	01/96	Buswell et al.	422	211	
		5,516,344	05/96	Corrigan	48	127.9	
		5,718,881	02/98	Sederquist et al.	423	652	
		5,931,658	08/99	Sederquist et al.	431	207	

RECEIVED

MAR 21 2001

EXAMINER _____ DATE CONSIDERED: _____

INFORMATION DISCLOSURE CITATION
(Use several sheets if necessary)

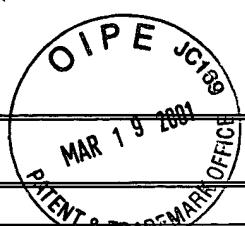
APPLICANT(s):

Sederquist et al.

FILING DATE

Nov. 30, 2000

GROUP ART UNIT:



U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4,203,950	05/80	Sederquist	422	197	
	4,861,347	08/89	Szydlowski et al.	48	61	
	4,935,037	06/90	Koyama et al.	48	94	
	5,484,577	01/96	Buswell et al.	422	211	
	5,516,344	05/96	Corrigan	48	127.9	
	5,718,881	02/98	Sederquist et al.	423	652	
	5,931,658	08/99	Sederquist et al.	431	207	

FOREIGN PATENT DOCUMENTS

EXAMINER

DATE CONSIDERED:

*EXAMINER: Initial citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.